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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,275	02/24/2004	Tsutomu Tetsuka	648.43518X00	8920

20457 7590 05/28/2008

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EXAMINER	
ZERVIGON, RUDY	
ART UNIT	PAPER NUMBER
1792	

MAIL DATE	DELIVERY MODE
05/28/2008	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/784,275
Filing Date: February 24, 2004
Appellants: TETSUKA ET AL.

Melvin Kraus
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 18, 2008 appealing from the Office action mailed October 18, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Applicant cites grounds of rejection on appeal as:

"

Claims 1, 2, 4, 5, 7, 8, 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadomura; Shingo et al. (US *639437* B1) in view of Kawasaki; Yoshinao et al. (US 4795529 A)

"

However, the correct grounds of rejection are:

“

Claims 1, 2, 4, 5, 7, 8, 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadomura; Shingo et al. (US *6391437* B1) in view of Kawasaki; Yoshinao et al. (US 4795529 A)

“

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6391437 B1	Kadomura; Shingo et al.	05-2002
US 4795529 A	Kawasaki; Yoshinao et al.	01-1989

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

Claims 1, 2, 4, 5, 7, 8, 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadomura; Shingo et al. (US 6391437 B1) in view of Kawasaki; Yoshinao et al. (US 4795529 A). Kadomura teaches a plasma (“dry etching”; column 45, line 57) processing apparatus (Figure 16; column 45, line 56 - column 46, line 60) for processing a substrate (40; Figure 16; column 44 line 4) with plasma (“dry etching”; column 45, line 57) by applying a high frequency (91; Figure 16; column 46, line 1) to a reaction chamber (21a; Figure 16,22b) so as to generate plasma (“dry etching”; column 45, line 57) therein, and applying a second high frequency (32; Figure 16) to a substrate holder (10; Figure 16) on which the substrate (40; Figure 16; column 44 line 4) is

placed so as to control the ion energy to the substrate (40; Figure 16; column 44 line 4); wherein a dielectric (116; Figure 22b; column 41; lines 7-14) that is exposed to the plasma substantially covers a surface portion of an inner wall of the reaction chamber (21a; Figure 16,22b) – claim 1

Kadomura further teaches:

i. The plasma ("dry etching"; column 45, line 57) processing apparatus (Figure 16; column 45, line 56 - column 46, line 60) according to claim 1, wherein the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) covers 90% or more (see 21a; Figure 16) of a total surface area of the inner wall of the reaction chamber (21a; Figure 16,22b) – claim 2

Kadomura does not teach:

i. an electrically conductive member is disposed within the reaction chamber (21a; Figure 16,22b) so as to be exposed to the plasma within the reaction chamber (21a; Figure 16,22b) at a position with respect to the inner wall of the reaction chamber (21a; Figure 16,22b) which is covered with the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40), and the electrically conductive member is electrically coupled to earth one of directly and through the inner wall of the reaction chamber (21a; Figure 16,22b) so as to form a DC earth which enables direct currect to flow therein from the plasma - claim 1. Applicant's claim requirement of "so as to control the ion energy to the substrate" is a claim requirement of intended use. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

ii. the electrically conductive member has an area in a range of 0.1% to 10% of the inner wall area of the reaction chamber (21a; Figure 16,22b), a magnetic field generation means is disposed outside of the reaction chamber (21a; Figure 16,22b) so as to apply a magnetic field to the plasma, and the electrically conductive member forming the DC earth is disposed at a position crossing a magnetic line of force that is closer to the substrate holder (10; Figure 16) than a magnetic line of force that crosses the inner wall of the reaction chamber (21a; Figure 16,22b) having the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) thereon – claim 1

iii. the conductive member has an area of the inner wall of the reaction chamber that is exposed to the plasma – claim 2

iv. the plasma ("dry etching"; column 45, line 57) processing apparatus (Figure 16; column 45, line 56 - column 46, line 60) according to any one of claims 1 and 2, wherein the electrically conductive member forming the DC earth is located at a position within the reaction chamber (21a; Figure 16,22b) where a floating potential of plasma ("dry etching"; column 45, line 57) is substantially equal to or greater than a floating potential of the plasma ("dry etching"; column 45, line 57) at either the inner wall of the reaction chamber (21a; Figure 16,22b) covered with the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) with respect to the high frequency (91; Figure 16; column 46, line 1) or the second high frequency (32; Figure 16), as claimed by claim 4

v. The plasma ("dry etching"; column 45, line 57) processing apparatus (Figure 16; column 45, line 56 - column 46, line 60) according to any one of claims 1 and 2, wherein the

dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) is a protective coating (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) formed of insulating ceramic such as carbide, oxide or nitride, as exemplified by SiC, boron carbide and alumite, and a thickness d of the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) coating is determined so that, with respect to the relationship between frequency f of the high frequency (91; Figure 16; column 46, line 1) applied to the substrate (40; Figure 16; column 44 line 4) and the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) constant .epsilon. of the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40), an impedance per unit area R=d/(2.pi.f.epsilon.) when high frequency (91; Figure 16; column 46, line 1) is propagated by capacitve coupling through the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) portion is 100 .OMEGA. or smaller, as claimed by claim 5

vi. The plasma ("dry etching"; column 45, line 57) processing apparatus (Figure 16; column 45, line 56 - column 46, line 60) according to any one of claims 1 and 2, wherein either a base material (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) of the electrically conductive member forming the DC earth or a protective coating (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) disposed on a surface of the electrically conductive member forming the DC earth and coming into contact with the plasma ("dry etching"; column 45, line 57) is composed of conductive ceramic, SiC, Al or Al compound, as claimed by claim 7

vii. The plasma ("dry etching"; column 45, line 57) processing apparatus (Figure 16; column 45, line 56 - column 46, line 60) according to any one of claims 1 and 2, wherein when a base material (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) of the electrically conductive member forming the DC earth is composed of a non-metallic material such as conductive ceramic, SiC, Al or Al compound, a conductive part (18a; Figure 22B) having a conductivity σ of 1 Ω-cm or less is provided to a surface of the base material by evaporation, spraying or interposing, thereby reducing an earth resistance of the electrically conductive member forming the DC earth (see chamber grounding - 21a; Figure 16), as claimed by claim 8

viii. that the plasma processing apparatus according to claim 4, wherein the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) is a protective coating (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) formed of insulating ceramic such as carbide, oxide or nitride, as exemplified by SiC, boron carbide and alumite, and a thickness d of the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) coating (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) is determined so that, with respect to the relationship between frequency f of the high frequency applied to the substrate and the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) constant E of the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40), an impedance per unit area R = d/(2nïE) when high frequency is propagated by capacitive coupling through the dielectric (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) is 100 ohm or smaller, as claimed by claim 10

ix. the plasma processing apparatus according claim 4, wherein either a base material of the electrically conductive member froming the DC earth or a protective coating (112; Figure 22b - "cordierite ceramics...Al+Si"; column 39; lines 33-40) disposed on a surface of electrically conductive member forming the DC earth coming into contact with the plasma is composed of conductive ceramic, SiC, Al or Al compound, as claimed by claim 11

x. The plasma processing apparatus according to claim 4, wherein when a base material (114c - "PBN"; Figure 22b) of the electrically conductive member forming the DC earth is composed of a non-metallic material such as conductive ceramic, SiC, Al or Al compound, a conductive part (18a; Figure 22B) having a conductivity c of 1 ohm-cm or less is provided to a surface of the base material by evaporation, spraying or interposing, thereby reducing an earth resistance of the electrically conductive member forming the DC earth (see chamber grounding - 21a; Figure 16), as claimed by claim 12

xi. The plasma ("dry etching"; column 45, line 57) processing apparatus (Figure 16; column 45, line 56 - column 46, line 60) according to claim 1, wherein the electrically conductive member is disposed within the reaction chamber (21a; Figure 16,22b) and is electrically coupled to earth by a wire extending through the inner wall of the reaction chamber (21a; Figure 16,22b), as claimed by claim 13

xii. The plasma ("dry etching"; column 45, line 57) processing apparatus (Figure 16; column 45, line 56 - column 46, line 60) according to claim 1, wherein the electrically conductive member is positioned in the reaction chamber (21a; Figure 16,22b) so as to enable suppression of chipping of the surface portion of the inner wall of the reaction chamber

(21a; Figure 16,22b), as claimed by claim 14. Applicant's claim requirement of "so as to enable suppression of chipping of the surface portion of the inner wall of the reaction chamber (21a; Figure 16,22b)" are claim requirements of intended use in the pending appartus claims. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

Kawasaki teaches a plasma plasma apparatus (Figure 3) including equivalent means (10; Figure 7) for magnetic field generation. Kawasaki further teaches an electrically conductive member (11; Figure 7; column 9, lines 7-18) is disposed so as to be exposed to the plasma within the reaction chamber (4+1; Figure 7; column 9, lines 7-18) at a position with respect to the inner wall (4; Figure 7; column 9, lines 7-18) of the reaction chamber (4+1; Figure 7; column 9, lines 7-18) and the electrically conductive member (11; Figure 7; column 9, lines 7-18) is electrically coupled to earth directly and through the inner wall (4; Figure 7; column 9, lines 7-18) of the reaction chamber (4+1; Figure 7; column 9, lines 7-18) so as to form a DC earth (see grounding symbol) which enables direct currect to flow therein from the plasma - claim 1. Applicant's claim requirement of "so as to control the ion energy to the substrate" is a claim requirement of intended use. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Kawasaki's equivalent means (10; Figure 7) for magnetic field generation and to add Kawasaki's electrically conductive member (11; Figure 7; column 9, lines 7-18) with

Kadomura's coating/covering to the apparatus of Kadomura, and to optimize the exposed/unexposed surface area as claimed.

Motivation to add Kawasaki's equivalent means (10; Figure 7) for magnetic field generation and to add Kawasaki's electrically conductive member (11; Figure 7; column 9, lines 7-18) with Kadomura's coating/covering to the apparatus of Kadomura is for optimal ionic acceleration and control as taught by Kawasaki (column 2, lines 3-34).

(10) Response to Argument

Applicant states:

"

The Examiner recognizing the aforementioned deficiencies of Kadomura et al, apparently contends that such deficiencies are overcome by the disclosure of Kawasaki et al. However, appellants submit that Kawasaki et al does not disclose the recited features (A-D), as pointed out above, and that the combination of Kadomura et al and Kawasaki et al represents a hindsight reconstruction attempt, in complete disregard of the teachings of the individual references.

"

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Further, the Examiner remains convinced that Applicant's *claimed* features *not* taught by Kadomura are indeed *taught* by Kawasaki as explicitly recited in the Examiner's rejections. Moreover, that not only does Kawasaki teach the claimed structure, but also the same function for both his and Applicant's electrically conductive member. In this case, a comparison between the Figure 1 structure of Kawasaki and Applicant's Figure 1 structure reveals many structural and thus identical explcit or implicit functional behavior:

Kawasaki - US 4795529 A – Figure 1	**Applicant's Figure 1**
Electrically powered (RF or DC) substrate table 5	Electrically powered (RF) substrate table 14
Magnetic field confinement means 10	Magnetic field confinement means 15
Annular exhaust gas outlet 3,4 below and around substrate table 5	Annular exhaust gas outlet 16 below and around substrate table 14
electrically conductive member (11; Figure 7; column 9, lines 7-18) disposed so as to be exposed to the plasma within the reaction chamber (4+1; Figure 7; column 9, lines 7-18) at a position with respect to the inner wall (4; Figure 7; column 9, lines 7-18) of the reaction chamber (4+1; Figure 7; column 9, lines 7-18) and the electrically conductive member (11; Figure 7; column 9, lines 7-18) is electrically coupled to earth directly and through the inner wall (4; Figure 7; column 9, lines 7-18) of the reaction chamber (4+1; Figure 7; column 9, lines 7-18) so as to form a DC earth (see grounding symbol) which enables direct currect to flow therein from the plasma	electrically conductive member (21a) is disposed so as to be exposed to the plasma within the reaction chamber (1) at a position with respect to the inner wall (101) of the reaction chamber (1) and the electrically conductive member (21a) is electrically coupled to earth directly and through the inner wall (101) of the reaction chamber (1) so as to form a DC earth which enables direct currect to flow therein from the plasma

As thus illustrated, the Examiner has demonstrated that the directly analogous elements of plasma confinement and control in Kawasaki and that of Applicant proivide are proof for *identical function* that is either expressly stated or inherently implied. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are

presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

Applicant further states:

“

Applicants submit that since the discharge tube 1 is made of silica, it is readily apparent that Kawasaki et al does not disclose that the *inner wall of the reaction chamber has a dielectric formed thereon*, and assuming arguendo that 4 represents the inner wall of the reaction chamber, there is no disclosure or teaching that *the inner wall 4 has a dielectric thereon*.

“

And..

“

While Kawasaki et al discloses a ground electrode 11 disposed around the outer periphery of the electrode 5, there is no disclosure that the ground electrode 11 is disposed at a position with respect to the inner wall of the reaction chamber *which is covered with the dielectric*, that the electrically conductive member is coupled through the inner wall of the reaction chamber…

“

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In particular, the Examiner does not apply Kawasaki for Applicant’s claimed chamber dielectric. In fact, the Examiner applies

Kadomura for the teaching the claimed chamber dielectric. See the Examiner's above stated grounds of rejection.

With respect to Kawasaki, Applicant further states:

"

there is no disclosure that ….the electrically conductive member has an area in a range of 0.1% to 10% of the inner wall area of the reaction chamber

" (page 9)

And..

"

It is interesting to note that the Examiner at least recognizes at page 9 of the office action that the area range is not disclosed, with the Examiner apparently suggesting it would be obvious to optimize the exposed/unexposed surface area, irrespective of this position by the Examiner, appellants submit that there is no disclosure or teaching of an electrically conductive member arranged with respect to the sidewall of the reaction chamber having a dielectric provided thereon, wherein the electrically conductive member has an area in a range of 0.1% to 10% of the inner wall area of the reaction chamber having the dielectric thereon

" (page 10)

And…

"

As to dependent claim 5, whether or not Kadomura et al provides a dielectric, there is no disclosure or teaching in Kadomura et al or Kawasaki et al of the relationship of "an impedance per unit area R=d/(2Pife) when high frequency is propagated by capacitive coupling through the

dielectric is 100 ohm or smaller". Thus, claim 5 also patentably distinguishes over the cited art in the sense of 35 USC 103.

" (Page 11)

In response, the Examiner both agrees and disagrees with repect to applicant's positions of relative part dimension. This is because none of the cited references explicitly state that the figures shown are drawn to scale, and what the scale is. It is common in the art to have a large disparity between what the actual dimensions are of an apparatus in practice compared to schematic drawings. This is commonly attributed to requisite clarity in describing drawings and when a single feature is emphasized at the cost of common features whose attributes are known in the art and are thus de-ephasized. Further, proportions of features in a drawing are not evidence of actual proportions when drawings are not to scale. Because the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. (In re Wright,193 USPQ 332 (CCPA 1977). MPEP 2125.

However, assuming agruendo that the Examiner's references are true to proportions, then what can quickly be concluded by Kawasaki's electrically conductive member (11; Figure 7; column 9, lines 7-18) is that it has a *smaller* area percentage than the inner wall area of Kawasaki's reaction chamber (1+4; Figure 1). And as noted above, the Examiner anticipates that Kawasaki's substrate support (5) and electrically conductive member (11; Figure 7; column 9, lines 7-18) are *exaggerated* features that are only used to clarify the structure and function of the apparatus.

Additionally even if Kawasaki's parts are not presumed to be of the claimed relative dimension(s), then a skilled artisen would find it obvious at the time the invention was made to optimize the dimensions for example to accommodate varying sized substrates and/or reduce apparatus' working area relative to the rest of the fabrication facility.

With respect to Kawasaki, Applicant further states:

"

that the electrically conductive member is disposed at a position crossing a magnetic line of force that is closer to the substrate holder than a magnetic line of force that crosses the inner wall of the reaction chamber having the dielectric thereon.

"

In response, the Examiner notes that such a claim limitation requiring the non-structural "magnetic line of force" is believed to be a claim limitation of intended use in the pending apparatus claims. Further, that Kawasaki's magnetic field generating means can meet such an intended use is also a functional and structural argument. That sufficient current is applied to Kawasaki's magnetic field confining means to meet the claimed requirement is one degree of freedom, while the relative dimension(s) of Kawasaki's apparatus parts, based on the stated magnetic field confining means, is yet at least many more degrees of freedom. In other words, the Examiner first believes that Kawasaki's apparatus is capable of performing the claimed function by either increasing current delivered to the powered magnetic field confining means and/or optimizing the relative dimension(s) of Kawasaki's apparatus parts. When the structure recited in the reference is substantially identical to that of the claims, claimed properties or

functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

Applicant states:

“

Rather, it is apparent that the Examiner has enraged in a hindsight reconstruction attempt, noting that Kawasaki et al issued in 1989 and Kadomura et al was filed in the US in 1998 almost 10 years later, and did not utilize an electrically conductive member in the form of a ground electrode the structural arrangement thereof.

“

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument based upon the age of the references, contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977).

Applicant states:

“

With respect to dependent claim 4, such claim recites the feature that the *electrically conductive member* is located at a position within the reaction chamber where a floating potential of plasma is substantially equal to or greater than a floating potential of the plasma at the inner wall of the reaction chamber covered with the dielectric with respect to the high frequency or the second high frequency. Here again, it is apparent that Kadomura et al does not disclose such feature and likewise, there is no disclosure or teaching in Kawasaki et al of this recited feature, which, when considered in conjunction with the parent claims further patentably distinguish over the cited art such that claim 3 should also be considered allowable at this time.

“

In response, the Examiner again invokes the structral and functional similarity, *and relative positions*, between Kawasaki’s and Kadomura’s apparatus with that of Applicant’s Figure 1 components. Further, Applicant’s claimed structural “position” relative to a non-structrual plasma property is also a relationship that if not inherent, is obvious in view the desire of plasma control in at least Kawasaki et al (column 2; lines 5-20).

Applicant states:

“

As to dependent claim 7, since only Kawasaki et al discloses an electrically conductive member in the form of the grounded electrode 11, it is apparent that Kawasaki et al does not disclose "either a base material of the electrically conductive member forming the DC earth or a protective coating disposed on a surface of the electrically conductive member forming the DC earth and coming into contact with the plasma is composed of conductive ceramic SiC, Al or Al

compound", such that claim 7 also patentably distinguishes over the cited art in the sense of 35 USC 103.

“

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Kawasaki is thus not applied for the stated arguments. See the Examiner’s rejection.

Applicant states:

“

Dependent claim 8 again defines a base material of the electrically conductive member and a conductive part of the electrically conductive member which is not disclosed or taught by Kawasaki et al and is also not disclosed or taught by Kadomura et al. Thus, claim 8 recites features which also patentably distinguish over the proposed combination of references in the sense of 35 USC 103 and should be considered allowable thereover.

“

With respect to Applicant’s assertion under Kawasaki, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). With respect to Applicant’s assertion under Kadomura, the Examiner disagrees and reasserts his applied rejection there under.

With respect to Kawasaki, Applicant states:

“

Assuming arguendo that the grounded electrode 11 of Kawasaki et al represents an electrically conductive member, even though the ground electrode 11 is not arranged in the manner recited in claim 1, it is readily apparent that the ground electrode 11 extends through the bottom of the treatment chamber 4 in Kawasaki et al, and is not disclosed to be “electrically coupled to earth by a wire extending through the inner wall of the reaction chamber” (emphasis added), noting that the inner wall of the reaction chamber is covered by a dielectric, which is not disclosed by Kawasaki et al. Thus, appellants submit that the features of claim 13 also patentably distinguish over the proposed combination of Kawasaki et al and Kadomura et al, recognizing that that combination also fail to disclose or teach the features of parent claim 1

“

In response, the Examiner disagrees and finds Kawasaki as identically teaching his electrically conductive member (11) as electrically coupled to earth (see grounding drawing, Figure 1) by a wire (grounding element connecting 11) extending through the inner wall of the reaction chamber (4,1; Figure 1).

Applicant further states:

“

With respect to dependent claim 14, which recites the feature that the electrically conductive member is positioned in the reaction chamber *so as to enable suppression of the chipping of the surface portion of the inner wall of the reaction chamber*, applicants submit that there is no disclosure or teaching in Kadomura et al or Kawasaki et al of such recited feature, and any suggestion of inherency is based upon speculation by the Examiner. Thus, appellants submit that

claim 14 recites further features not disclosed or taught by the cited art in the sense of 35 USC 103 and should be considered allowable thereover.

“

In response to applicant's argument, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Rudy Zervigon/

Primary Examiner, Art Unit 1792

Conferees:

/Parviz Hassanzadeh/
Supervisory Patent Examiner, Art Unit 1792

/Gregory L Mills/

Supervisory Patent Examiner, Art Unit 1700